REMARKS

1. Summary of Office Action

In the Office Action mailed April 21, 2006, the Examiner rejected claims 1-27 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0188875 (Hwang et al.) in view of U.S. Patent No. 6,690,655 (Miner et al.).

2. Amendments to the Specification

Applicants have amended paragraph 0025 on page 6 of the specification to correct a typographical error. Specifically, the identification number of "wake on LAN event detector" in the first sentence of paragraph 0025 was change from (the incorrect) "33" to (the correct) "36."

3. Amendments to Claims

Applicants have amended claims 1 and 19 to correct the same typographical error in each. Specifically, the word "signally" has been replaced with the word "signaling." Verification that the amendment introduces the proper correction can be found in the specification at page 3, lines 25-26, for example. Applicants have also amended claim 2 to correct a typographical error; specifically, an extra period (".") at the end of the claim has been deleted. Finally, Applicants have amended claim 27 to correct a typographical error; specifically, a missing period (".") was added to the end of the claim.

4. Summary of Claimed Invention

Presently pending are claims 1-27, of which claims 1, 10, and 19 are independent, and the remainder are dependent.

Various embodiments of Applicants' invention are directed to a high-speed network interface that includes automatic power management with auto-negotiation for adjusting the speed of the interface's communication link with an external network in accordance with

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conditions in the host system in which the network interface operates. Specifically, power management logic of the network interface may monitor for conditions of the host system that necessitate transitions between at least a high speed protocol and a lower speed protocol of the network interface's communication link with the external network. Conditions that may cause the power management logic to invoke a change in protocol speed include, for instance, a transition between power states of the host system, and/or a signal generated by software executing on the host processor of the system and reflective of the power state of the system. For example, detection by the network interface of a loss in primary system power may cause the power management logic to force the network interface to transition from the high speed to the lower speed protocol. Other examples are also possible.

While operating in the lower speed protocol mode, the network interface is capable of monitoring the network for wake-up signals that are directed to the host computer system. For example, if the network interface is operating in the lower speed protocol owing to the host system operating in a lower power mode, the wake-up signal may be used to cause the system to transition to its full power mode. Other examples are also possible.

One aspect of Applicants' system is that the transition of the network interface from its high speed protocol to its lower speed protocol is invoked by its internal power management logic in response to detection that the system has entered its lower power mode. That is, the network interface is capable of detecting an environmental change, such as a drop in supplied power, and responsively forcing the protocol speed transition.

It should be understood that the preceding brief summary is intended to call attention to only certain aspects of Applicants' invention that are relevant to the following discussion. Consequently, the summary should not be viewed as encompassing all aspects previously

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disclosed and/or claimed, nor limiting the scope of Applicants' presently claimed invention in any new manner.

5. Response to Rejections under 35 U.S.C. §103(a)

As noted, the Examiner rejected claims 1-27 under 35 U.S.C. § 103(a) as being unpatentable over Hwang in view of Miner. In order to establish a *prima facie* case of obviousness of a claimed invention by applying a combination of references, the prior art must teach or suggest all of the claim limitations. M.P.E.P. § 2143. Applicants respectfully submit that the combination of Hwang and Miner fails to teach all of the limitations of any the above-listed claims. In particular, the limitation, recited in one way or another in all of the claims, of forcing the network interface from a high speed to lower speed mode in response to the entry of the host processor or system bus into a lower power mode is not taught or suggested by the combination of Hwang and Miner. Further, Applicants submit that there would have been no motivation to combine references by one of ordinary skill in the art at the time of the invention. Hence the *prima facie* case advanced by the Examiner is not supported. A fuller discussion of Applicants arguments is discussed below, following a brief summary of Hwang and Miner.

a. Summary of Hwang and Miner

Hwang discloses a purported invention directed to a power management system and method for providing system manageability for computer systems under conditions of loss of primary power and, possibly, operating system. According to Hwang, implementations of an industry standard for addressing power-loss situations, the Alert Standard Format (ASF), need improvements. Hwang also discloses that there is a need for improved power management capabilities in computer systems. The disclosed aim of the purported invention of Hwang is to address the identified needs. In particular, Hwang discloses power management techniques

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implemented in a local bus adapter/controller that integrates network communication and management within a computer system (see, e.g., Abstract).

Miner discloses an invention directed to conserving power in a communication system by programmatically switching interface devices between high and low power modes in accordance with the (approximately) instantaneous demand (or lack thereof) for communication with entities external to the interface devices. More specifically, Miner discloses a cable modem network system in which client cable modems, generically termed by Miner as remote interface units (RIUs), are connected to and receive power from the cable modem network. According to Miner, each RIU interfaces to the cable network with two downstream channels, one active and the other standby, and one upstream channel. The active downstream channel is disclosed as being high speed, operating in a full power mode, and the standby downstream channel is disclosed as being low speed, operating in a low power mode. In addition, Miner discloses that each RIU interfaces to an external communication device, such as a device on a local area network or a telephone, providing the communication device with connectivity to other entities in or connected to the cable modem network.

Miner also discloses that upon an *external* command to do so, the RIU switches between the active and standby downstream channels. In other words, Miner teaches that the transition between high and low speed modes of operation of the RIU is controlled by an external command or event, not by detection by internal power management logic of an event that signals the host system's entry into a low power mode. That is, Miner does not disclose a network interface that monitors and detects changes in the power state of the host system, but rather an RIU that changes its speed mode in response to an external command. Furthermore, the power modes of the RIU in Miner are not tied to the power state of the communication device to which

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the RIU provides network connectivity. Rather, the power modes of the RIU are disclosed as accommodating the immediate demand for communication with the cable modem network, as determined, for example, by a control element in the network.

b. Failure of Combination to Teach or Suggest All Claim Elements

With regard to claim 1, the Examiner conceded that Hwang does not disclose the claim element "power management logic which forces the medium interface unit from the high speed protocol to the lower speed protocol in response to an event signaling entry of said lower power mode." The Examiner then asserted that Miner makes up for the acknowledged deficiency in Hwang, in particular citing in Miner Figure 7, column 4, lines 7-26, column 10, lines 46-53, column 20, lines 36-40, and column 21, lines 24-32, 48-52. Applicants respectfully submit that the cited figure and text portions in Miner merely disclose or claim modes of operation of the RIU, or at best disclose transitions between RIU modes in response either to commands from an *external network control facility,* or to events on the communication device *which are unrelated to the device's power state.* As discussed below, neither the Examiner's citations in Miner, nor any other teachings of Miner make up for the acknowledged deficiency of Hwang with respect to claim 1.

Considering the entirety of claim 1, it is clear that the recited network interface is part of the recited computer system, and is coupled to the recited host processor, which is also part of the system. It is also clear from the claim that the network interface serves to provide a communicative connection between the computer system and a network. In addition, the recited power modes, including the lower power mode, are associated with operation of the host processor. Further, the recited power management logic is part of the network interface. Thus, viewed in the context of the entirety of claim 1, the recitation "power management logic which

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forces the medium interface unit from the high speed protocol to the lower speed protocol in response to an event signaling entry of said lower power mode" refers to *entry of the computer system into the recited lower power mode*, and implicitly describes the response of the power management logic of the network interface to an internal (within the computer system) communication signaling the associated event.

In contrast, Miner teaches an RIU that provides network connectivity to an external communication device, for example via interface 411 in Figure 4. Miner does not disclose any means or method by which the RIU monitors or is even made aware of the power state of the communication device. Rather, Miner teaches that an RIU switches between secondary and primary downstream channels according to the need (or lack thereof) for communication between the cable network and the external communication device to which the RIU provides network connectivity. Miner discloses that the RIU is made aware of the need for such communication either by a command from the network control facility, or by the external communication device attempting to initiate an external communication. See, for example column 19, lines 43-64, and items 705 and 709 in Figure 7 of Miner, in addition to column 4, lines 7-26, and column 10, lines 46-53 cited by the Examiner.

Miner further discloses that the RIU switches power consumption according to which downstream channel is required to be active, not responsive to the power mode of the host system, as expressly required in claim 1. For instance, Miner states in column 9, lines 50-55, "Responsive to receiving the control information via the RIU's secondary downstream channel... the RIU's standby mode processor 409 enables power to the RIU's active mode processor 407, primary downstream channel receiver demodulator 403..." Moreover, Miner teaches that the purpose of the RIU's low power mode is to reduce the power sourcing

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requirements of the RIU when no communications are required (see column 20, lines 26-35, and, as cited by the Examiner, column 20 lines 36-40), again, not to accommodate a power state of the communication device. In other words, Miner teaches power transitions in the RIU that are responsive to the need to switch channel speeds, ***not*** channel speed transitions that are responsive to changes in power mode of the communication device to which the RIU provides network connectivity.

Applicants submit that neither in the text or figure cited by the Examiner, nor anywhere else in Miner is there disclosed power management logic which forces a transition from a high speed protocol to a lower speed protocol ***in response to an event signaling entry of said lower power mode***, as expressly recited in claim 1. In view of the above discussion, Applicants therefore submit that the combination of Hwang and Miner fails to teach or suggest at least this element of claim 1.

With regard to independent claims 10 and 19, the Examiner advanced the same reasons for rejection as those advanced for the rejection of claim 1. Claims 10 and 19 both recite, in one way or another, the same claim limitation of claim 1 that the combination of Hwang and Miner fails to teach or suggest. Thus, Applicants submit that for at least the reasons discussed in connection with claim 1, the combination of Hwang and Miner also fails to teach or suggest all of the elements of either claim 10 or claim 19.

Each of claims 2-9 depend from claim 1. Applicants therefore submit that for at least the reasons discussed above, the combination of Hwang and Miner fails to teach every element of claims 2-9. Similarly, for at least the reasons discussed above, the combination of Hwang and Miner fails to teach every element of claims 11-18, which depend from claim 10, or of claims 20-27, which depend from claim 19.

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c. Lack of Motivation to Combine

Applicants further submit that one of ordinary skill in the art would have found no motivation to combine Hwang and Miner, because their respective teachings in connection with power management are so disparate as to yield no recognizable advantage when combined. As discussed above, Hwang's purported invention is directed to a power management system and method for providing system manageability for computer systems under conditions of loss of primary power and, possibly, operating system. In contrast, Miner's invention is directed to adjusting communication speed and associated power modes of an RIU according to the need to support communications between a cable network and a communication device. In Miner, commands and/or events that are external to the RIU determine the required speed, which in turn determines the required power.

One of ordinary skill in the art would not have recognized the teachings of Miner, applicable to the communication needs of devices external to an RIU, as introducing new aspects to Hwang that would improve or even relate to system manageability under conditions of primary power loss or operating system loss. Similarly, the purported system manageability techniques disclosed in Hwang would not have been seen to offer any advantages to the responsiveness of the RIU to external demands for communication disclosed in Miner. Hence, one of ordinary skill in the art would have recognized no advantage to combining Hwang and Miner.

d. Claims are Allowable

Applicants submit that claim 1 is allowable for at least the reasons that the combination of Hwang and Miner fails to teach or suggest every limitation of the claim, and that one of ordinary skill in the art would have found no motivation to combine the two references.

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Applicants further submit that for at least the reason that they depend from an allowable claim, claims 2-9 are allowable as well.

Applicants further submit that claims 10 and 19 are allowable for at least the same reasons for which claim 1 is allowable. Finally, Applicants submit that for at least the reason that they depend from allowable claims, claim 11-18 and 20-27 are allowable as well.

6. Conclusion

The Applicants submit that the application is in good and proper form for allowance and therefore respectfully request favorable reconsideration. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney, at 312-913-3305.

Respectfully submitted,

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Date: August 21, 2006 By: _____

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